



Bari,  
7-10 novembre 2013

# Gestione della patologia tiroidea in corso di Diabete Mellito

Documenti reperibili *'in rete'* su diabete e tiroide

*Mauro Maccario*  
*Dipartimento Scienze Mediche*  
*Università di Torino*



# DIABETE e TIROIDE - Documenti reperibili 'on line'



Bari,  
7-10 novembre 2013

## Documenti specifici: Patologia tiroidea nel Diabete

Sowiński J, et al. ... Polish Society of Endocrinology; Polish Diabetes Association.  
Recommendations of the Polish Society of Endocrinology and Polish Diabetes Association for the management of thyroid dysfunction in type 1 and type 2 diabetes.  
Endokrynol Pol. 2013;64(1):73-7.

## Documenti non specifici: problematiche tiroide nella gestione del Diabete

### **Società Italiana di Diabetologia, Associazione Medici Diabetologi**

*Standard Italiani per la cura del Diabete Mellito*

<http://www.siditalia.it/linee-guida/488-09022011-standard-italiani-per-la-cura-del-diabete-mellito-2009-2010/download.html>

### **American Diabetes Association**

*Standards in medical care of diabetes – 2013*

[http://care.diabetesjournals.org/content/36/Supplement\\_1/S11.full.pdf+html](http://care.diabetesjournals.org/content/36/Supplement_1/S11.full.pdf+html)

### **American Thyroid Association**

*Joint Statement of The Endocrine Society and American Thyroid Association*

*FDA Guidance on the Use of Liraglutide for Type 2 Diabetes*

[http://www.thyroid.org/wp-content/uploads/2012/05/Liraglutide\\_statement\\_for\\_members\\_mar\\_2010.pdf](http://www.thyroid.org/wp-content/uploads/2012/05/Liraglutide_statement_for_members_mar_2010.pdf)

### **NICE (National Institute for Clinical Excellence)**

*Clinical Guideline 15*

*Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults*

<http://www.nice.org.uk/nicemedia/live/10944/29390/29390.pdf>

*Clinical Guideline 87*

*Type 2 diabetes. The management of type 2 diabetes*

<http://www.nice.org.uk/nicemedia/live/12165/44320/44320.pdf>

### **SIGN (Scottish Intercollegiate Guidelines Network)**

*Guideline 116 - Management of Diabetes*

<http://www.sign.ac.uk/pdf/sign116.pdf>



# In Polonia c'è...



Bari,  
7-10 novembre 2013

SZKOLENIE PODYPLOMOWE/POSTGRADUATE EDUCATION



Endokrynologia Polska  
Tom/Volume 64; Numer/Number 1/2013  
ISSN 0423-104X

## Recommendations of the Polish Society of Endocrinology and Polish Diabetes Association for the management of thyroid dysfunction in type 1 and type 2 diabetes

Zalecenia Polskiego Towarzystwa Endokrynologicznego oraz Polskiego Towarzystwa Diabetologicznego dotyczące diagnostyki i leczenia zaburzeń funkcji tarczycy w cukrzycy typu 1 i 2

**Jerzy Sowiński<sup>1</sup>, Leszek Czupryniak<sup>2</sup>, Andrzej Milewicz<sup>3</sup>, Alicja Hubalewska-Dydejczyk<sup>4</sup>, Małgorzata Szelachowska<sup>5</sup>, Marek Ruchała<sup>1</sup>, Andrzej Lewiński<sup>6, 7</sup>, Maria Górka<sup>5</sup>, Katarzyna Siewko<sup>5</sup>, Ewa Wender-Ożegowska<sup>8</sup>, Dorota Zozulińska-Ziółkiewicz<sup>9</sup>, Roman Junik<sup>10</sup>, Nadia Sawicka<sup>1</sup>, Paweł Gutaj<sup>8</sup>**

<sup>1</sup>Department of Endocrinology, Metabolism and Internal Medicine, Poznan University of Medical Sciences

<sup>2</sup>Department of Internal Medicine and Diabetology, Medical University of Lodz

<sup>3</sup>Department of Endocrinology, Diabetology and Isotope Therapy, Wrocław Medical University

<sup>4</sup>Department of Endocrinology, Jagiellonian University Medical College, Krakow

<sup>5</sup>Department of Endocrinology, Diabetology and Internal Medicine, Medical University of Białystok

<sup>6</sup>Department of Endocrinology and Metabolic Disorders, Medical University of Lodz

<sup>7</sup>Polish Mother's Memorial Hospital Research Institute, Lodz

<sup>8</sup>Department of Obstetrics and Women's Diseases, Poznan University of Medical Sciences

<sup>9</sup>Department of Internal Medicine and Diabetology, Poznan University of Medical Sciences

<sup>10</sup>Department of Endocrinology and Diabetology of Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University, Torun



# Recommendations of the Polish Society of Endocrinology and Polish Diabetes Association for the management of thyroid dysfunction in type 1 and type 2 diabetes



Bari,  
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- Influence of thyroid hormones on carbohydrate metabolism
- Influence of diabetes mellitus on thyroid hormones
- Influence of selected drugs on thyroid hormones
- Choice of diagnostic tests for the evaluation of thyroid function
- Polish Society of Endocrinology and Polish Diabetes Association recommendations on screening for thyroid dysfunction in type 1 and type 2 diabetes
  - *Type 1 diabetes*
  - *Type 2 diabetes*
  - *Treatment*
    - Treatment of primary hypothyroidism in diabetic patients
    - Pregnancy and lactation
    - Treatment of primary hyperthyroidism in diabetic patients
    - Nodular goitre
    - Graves' disease
    - Thyroid orbitopathy
    - Pregnancy and lactation
- Thyroid disease and the treatment of diabetes

**Endokrynol Pol 2013;  
64 (1): 73–77**



# Recommendations of the Polish Society of Endocrinology and Polish Diabetes Association for the management of thyroid dysfunction in type 1 and type 2 diabetes



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## ***Type 1 diabetes***

Endokrynol Pol 2013; 64 (1): 73–77

1. TSH and thyroid peroxidase antibodies (TPOAb) should be measured in each patient with newly diagnosed type 1 diabetes, and in patients who have never undergone tests for thyroid hormonal function.

1. ..

2. In patients with TPOAb titer above reference value and TSH concentration  $\geq 2.0$  mIU/L, fT4 concentration should be assessed and TSH concentration should be measured once a year.

3. Patients with TPOAb titer within reference values and TSH  $\geq 2.0$  mIU/L should undergo TSH tests every two years.

4. Patients with TPOAb titer within reference values and TSH  $< 2.0$  mIU/L should undergo TSH tests every five years.

5. ..

9. Measurements of TSH and TPOAb titer are advisable in all female patients in the 4th–8th week of pregnancy (first obstetrician appointment).
10. TSH concentrations and anti-TSH receptor antibodies (TRAb) should be measured in all pregnant patients with a past medical history of Graves' disease between the 4th and 8th week of pregnancy (first obstetrician appointment). Moreover, a second TRAb titer assessment is recommended towards the end of the second trimester (before the 22nd week of pregnancy).



# Recommendations of the Polish Society of Endocrinology and Polish Diabetes Association for the management of thyroid dysfunction in type 1 and type 2 diabetes



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Endokrynol Pol 2013; 64 (1): 73–77

## **Type 2 diabetes**

1. TSH level should be measured in each patient with newly diagnosed type 2 diabetes, and in patients who have never undergone tests for thyroid hormonal function.
2. ..
3. In patients with TPOAb titer above reference value, diagnosis of type 2 diabetes should be reassessed e.g. anti-glutamic acid decarboxylase antibodies (anti-GAD Ab) should be measured.
4. ..
6. Patients with TPOAb titer within reference values and TSH < 2.0 mIU/L should undergo TSH tests every five years.
7. During every appointment with a diabetologist, patients should undergo a clinical examination for thyroid dysfunction — when any abnormalities are detected, TSH level ought to be assessed.
8. TSH level should be measured in diabetic patients with a poor lipid profile.
9. Measurement of TSH level is advisable in the case of every female patient planning a pregnancy.
10. Measurements of TSH and TPOAb titer are advisable in all female patients in the 4th–8th week of pregnancy (first obstetrician appointment).
11. TSH concentrations and anti-TSH receptor antibodies (TRAb) should be measured in all pregnant patients with a past medical history of Graves' disease between the 4th and 8th week of pregnancy (first obstetrician appointment). Moreover, a second TRAb titer assessment is recommended towards the end of the second trimester (before the 22nd week of pregnancy).





# A.D.A. Sta

## POSITION STATEMENT

# Standards of Medical Care for Diabetes—2013

AMERICAN DIABETES ASSOCIATION

Palpazione della tiroide

Dosaggio del TSH in:

- DMT1
- Dislipidemia
- Donne > 50 anni

pag. s17

Table 7—Components of the comprehensive diabetes evaluation

### Medical history

- Age and characteristics of onset of diabetes (e.g., DKA, asymptomatic laboratory finding)
- Eating patterns, physical activity habits, nutritional status, and weight history; growth and development in children and adolescents
- Diabetes education history
- Review of previous treatment regimens and response to therapy (A1C records)
- Current treatment of diabetes, including medications, medication adherence and barriers thereto, meal plan, physical activity patterns, and readiness for behavior change
- Results of glucose monitoring and patient's use of data
- DKA frequency, severity, and cause
- Hypoglycemic episodes
  - Hypoglycemia awareness
  - Any severe hypoglycemia: frequency and cause
- History of diabetes-related complications
  - Microvascular: retinopathy, nephropathy, neuropathy (sensory, including history of foot lesions; autonomic, including sexual dysfunction and gastroparesis)
  - Macrovascular: CHD, cerebrovascular disease, and PAD
  - Other: psychosocial problems\*, dental disease\*

### Physical examination

- Height, weight, BMI
- Blood pressure determination, including orthostatic measurements when indicated
- Fundoscopic examination\*
- Thyroid palpation
- Skin examination (for acanthosis nigricans and insulin injection sites)
- Comprehensive foot examination
  - Inspection
  - Palpation of dorsalis pedis and posterior tibial pulses
  - Presence/absence of patellar and Achilles reflexes
  - Determination of proprioception, vibration, and monofilament sensation

### Laboratory evaluation

- A1C, if results not available within past 2–3 months
- If not performed/available within past year
- Fasting lipid profile, including total, LDL and HDL cholesterol and triglycerides
  - Liver function tests
  - Test for urine albumin excretion with spot urine albumin-to-creatinine ratio
  - Serum creatinine and calculated GFR
  - TSH in type 1 diabetes, dyslipidemia or women over age 50 years

### Referrals

- Eye care professional for annual dilated eye exam
- Family planning for women of reproductive age
- Registered dietitian for MNT
- DSME
- Dentist for comprehensive periodontal examination
- Mental health professional, if needed



# A.D.A. Standards 2013



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Pharmacological and overall approaches to treatment

Insulin therapy for type 1 diabetes

## *Recommendations*

...

c) Consider screening those with type 1 diabetes for other autoimmune diseases (thyroid, vitamin B12 deficiency, celiac) as appropriate. (B)

*pp. s21-s22*

- Because of the increased frequency of other autoimmune diseases in type 1 diabetes, screening for thyroid dysfunction, vitamin B12 deficiency, or celiac disease should be considered based on signs and symptoms. Periodic screening in absence of symptoms has been recommended, but the effectiveness and optimal frequency are unclear.





# A.D.A. Standards 2013



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## Screening and management of chronic complications in children and adolescents with type 1 diabetes

### *HYPOTHYROIDISM*

#### *Recommendations*

- Consider screening children with type 1 diabetes for thyroid peroxidase and thyroglobulin antibodies soon after diagnosis. (E)
- Measuring thyroid-stimulating hormone (TSH) concentrations soon after diagnosis of type 1 diabetes, after metabolic control has been established, is reasonable. If normal, consider rechecking every 1–2 years, especially if the patient develops symptoms of thyroid dysfunction, thyromegaly, or an abnormal growth rate

- Autoimmune thyroid disease is the most common autoimmune disorder associated with diabetes, occurring in 17–30% of patients with type 1 diabetes (437). About one-quarter of type 1 diabetic children have thyroid autoantibodies at the time of diagnosis of their diabetes (438), and the presence of thyroid autoantibodies is predictive of thyroid dysfunction, generally hypothyroidism but less commonly hyperthyroidism (439).

**Subclinical hypothyroidism** may be associated with increased risk of symptomatic hypoglycemia (440) and with reduced linear growth (441).

**Hyperthyroidism** alters glucose metabolism, potentially resulting in deterioration of metabolic control.



# SID - Standard italiani per la cura del diabete mellito 2009-2010



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Tabella 5

La valutazione iniziale del diabetico

## V. cura del diabete

### A. VALUTAZIONE INIZIALE



#### ESAME OBIETTIVO

- Altezza e peso (in relazione con i parametri normali per età nel bambino e nell'adolescente)
- Circonferenza addominale
- Maturazione sessuale (se in peripubertà)
- Pressione arteriosa in clino- e ortostatismo (confronto con i parametri normali per l'età nel bambino e nell'adolescente)
- Esame oftalmoscopico del fundus
- Esame del cavo orale
- Palpazione tiroidea
- Semeiotica cardiaca e polmonare
- Palpazione addominale (per evidenziare epatomegalia)
- Valutazione dei polsi con palpazione e auscultazione per la ricerca di eventuali soffi vascolari
- Valutazione delle mani
- Esame dei piedi
- Esame della cute (in particolare nei siti di iniezione insulinica)
- Esame neurologico



# SID - Standard italiani per la cura del diabete mellito 2009-2010



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Tabella 5

La valutazione iniziale del diabetico

V. cura del diabete

A. VALUTAZIONE INIZIALE



## ESAMI DI LABORATORIO

- Glicemia a digiuno e HbA<sub>1c</sub>
- Profilo lipidico a digiuno, comprendente colesterolo totale, colesterolo HDL, trigliceridi e colesterolo LDL
- Test di funzionalità epatica ed eventuali approfondimenti nel sospetto di steatosi o epatite
- Microalbuminuria in tutti i diabetici tipo 2 e nei diabetici tipo 1 con durata di malattia > 5 anni
- Creatininemia (nel bambino solo in presenza di proteinuria) e stima della filtrazione glomerulare
- Nei diabetici tipo 1 alla diagnosi: screening di tiroidite autoimmune e malattia celiaca: TSH, FT4, anticorpi antitiroide, EMA o anti-transglutaminasi\*, IgA
- Esame delle urine per valutare chetonuria, proteinuria e sedimento



# SID - Standard italiani per la cura del diabete mellito 2009-2010



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## SCREENING E TRATTAMENTO DELLA NEUROPATIA DIABETICA

- screening della funzionalità tiroidea

## CURA DEL DIABETE IN BAMBINI E ADOLESCENTI - Diabete tipo 1

### Screening delle patologie autoimmuni associate (patologia tiroidea e malattia celiaca)

▶ Alla diagnosi eseguire la determinazione di: TSH, FT4; anticorpi antitiroide, IgA, EMA o antitransglutaminasi.

▶ Annualmente controllare TSH, anticorpi antitiroide, EMA o antitransglutaminasi. In caso di EMA o antitransglutaminasi positivi in 2 occasioni è opportuno eseguire biopsia intestinale per formulare la diagnosi istologica di malattia celiaca.

(Livello della prova VI, Forza della raccomandazione B)

## CURA DEL DIABETE PRIMA E DURANTE LA GRAVIDANZA

Valutazione medica e laboratoristica dello stato di salute, screening della funzionalità tiroidea, studio delle complicanze

Il diabete pre-gestazionale richiede poi una serie di indagini aggiuntive: controllo della funzionalità tiroidea (T4 libera, TSH) a inizio gravidanza, eventualmente da ripetere durante la gestazione;







# N.I.C.E.



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## NHS - NICE (National Institute for Clinical Excellence)

### *Clinical Guideline 15 Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults*

<http://www.nice.org.uk/nicemedia/live/10944/29390/29390.pdf>

NHS

National Institute for  
Clinical Excellence

### Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults

#### June 2009

We have updated our guidance on screening for other conditions in children and young people with type 1 diabetes (recommendation 1.3.5.1, pages 6, 28, 87 and 97) and removed the recommendation to re-test for coeliac disease at least every 3 years after diagnosis. This update follows the development of NICE clinical guideline 86. The changes are shown in the document as greyed out text.

#### March 2010

Recommendations 1.11.5.2, 1.11.5.3, 1.11.5.4, 1.11.5.5 and 1.11.5.7 in this guideline have been updated and replaced by 'Neuropathic pain: the pharmacological management of neuropathic pain in adults in non-specialist settings' (NICE clinical guideline 96), available from [www.nice.org.uk/guidance/CG96](http://www.nice.org.uk/guidance/CG96)

Recommendation 1.12.3.6 has been updated by the NICE guideline on Hyperglycaemia, available from [www.nice.org.uk/guidance/CG130](http://www.nice.org.uk/guidance/CG130). The obsolete part of the recommendation has been crossed out in this document.

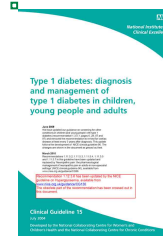
### Clinical Guideline 15

July 2004

Developed by the National Collaborating Centre for Women's and Children's Health and the National Collaborating Centre for Chronic Conditions



# N.I.C.E. DMT1 Clinical Guideline 15



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## 1.3.5 Screening for complications and associated conditions

### 1.12.4 Associated disorders

#### Ongoing care

Offer an integrated package of care from a **multidisciplinary paediatric diabetes care team** with training in clinical, educational, dietetic, lifestyle, mental health and foot care aspects of diabetes in children and young people

##### At every clinic visit

- ✓ Measure HbA<sub>1c</sub> (ensure current level is available for use in the clinic)
- ✓ Check injection sites
- ✓ Measure height and weight and calculate body mass index

##### Once a year

- ✓ Check for retinopathy, microalbuminuria and blood pressure from 12 years
- ✓ Screen for thyroid disease
- ✓ Review foot care

##### ~~Every 3 years~~

- ~~✓ Screen for coeliac disease~~





# N.I.C.E.



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7-10 novembre 2013

## NHS - NICE (National Institute for Clinical Excellence)

### *Clinical Guideline 87 Type 2 diabetes. The management of type 2 diabetes*

<http://www.nice.org.uk/nicemedia/live/12165/44320/44320.pdf>

**NICE** National Institute for  
Health and Care Excellence

Type 2 diabetes

The management of type 2 diabetes

Issued: May 2009 last modified: March 2010

NICE clinical guideline 87  
[guidance.nice.org.uk/cg87](http://guidance.nice.org.uk/cg87)

NICE has accredited the process used by the Centre for Clinical Practice at NICE to produce guidelines. Accreditation is valid for 5 years from September 2009 and applies to processes produced since April 2007 using the processes described in NICE's 'The guidelines manual' (2007, updated 2008). More information on accreditation can be viewed at [www.nice.org.uk/accreditation](http://www.nice.org.uk/accreditation).

© NICE 2008





# N.I.C.E. DMT2 Clinical Guideline 87

NICE International for  
Healthcare Quality

Type 2 diabetes  
The management of type 2 diabetes  
April 2010, last updated March 2014  
NICE clinical guidelines 87  
www.nice.org.uk



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## 1.10 Management of blood lipid levels

...

### 1.10.2 Fibrates

...

1.10.2.2 Assess possible secondary causes of high serum triglyceride levels, including poor blood glucose control (others include **hypothyroidism**, renal impairment and liver inflammation, particularly from alcohol). If a secondary cause is identified, manage according to need.



# Medscape



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Remote Scree  
n Vision Loss Fr  
Diabetes

Clinical Endocrinology

## The Interface B

Leonidas H. Duritas, Jacques On  
Clin Endocrinol. 2011;75(1):1-9.

### ► Abstract and Introduc

- Epidemiology
- Pathophysiology
- Clinical Aspects
- Interaction of Metformin  
Thyroid Function
- Screening for Thyroid  
Dysfunction in Patients
- Summary

- Abstract and Introduction
- Epidemiology
- Pathophysiology
- Clinical Aspects
- Interaction of Metformin and  
Thyroid Function
- **Screening for Thyroid  
Dysfunction in Patients with  
DM**
- Summary
- Search Strategy
- References

## RELATED ARTICLES

### Diabetic Neuropathy

### The Thyroid – Too Much and Too Little Across the Ages

### Age-specific TSH Reference Ranges Have Minimal Impact on the Diagnosis of Thyroid Dysfunction

diabetes

## Screening for Thyroid Dysfunction in Patients with DM

The close interactions between thyroid status and metabolic control discussed above argue for close monitoring of thyroid function particularly in patients with T1DM. Treatment interference, as discussed above for metformin, needs to be taken into account. Currently, a number of guidelines suggests not only baseline testing for thyroid dysfunction in newly diagnosed DM: the British Thyroid Association supports, in addition, Ab-TPO testing at baseline and TSH monitoring at yearly intervals. There are large variations in the different guidelines, ranging from ignoring thyroid function tests to yearly testing (reviewed in Ref. 7). All these recommendations apply only for T1DM, whereas in T2DM thyroid testing is only recommended if an autoimmune disease is suspected.<sup>[7]</sup> Bearing in mind that the prevalence of thyroid dysfunction in T2DM is comparable to that in T1DM, even though the genetic links are less clear, it appears that recommendations for more frequent testing, on an annual to biannual basis, seems justified in higher risk groups like patients over 50 or 55, particularly with suggestive symptoms, raised antibody titres or dylipidaemia. We thus would support the suggestion of an initial TSH and TPO antibody testing which, as discussed, will help to predict the development of hypothyroidism in patients with



# Canadian Diabetes Association



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The screenshot shows a web browser window displaying the Canadian Diabetes Association website. The address bar shows the URL: <http://www.diabetes.ca/diabetes-and-you/living/complications/thyroid-disease/>. The page title is "Thyroid disease".

The website header features the Canadian Diabetes Association logo and the tagline: "We're leading the fight against diabetes by helping people with diabetes live healthy lives while working to find a cure". There is a search bar and a "Search" button. Below the header is a navigation menu with links: ABOUT US, DIABETES & YOU, RESEARCH, GET INVOLVED, VOLUNTEER, ADVOCACY, FOR PROFESSIONALS, MEDIA, and DONATE NOW.

The main content area is titled "Thyroid disease" and includes the following text: "People with diabetes experience thyroid disorders more frequently than the general population. Both diabetes and thyroid disease involve the endocrine system, a group of glands that helps to regulate the body's metabolism. The thyroid is a butterfly-shaped gland in the lower neck just beneath the skin in front of the windpipe and weighs about 15 grams, higher than women who do not have diabetes. There also appears to be a higher than normal occurrence of thyroid disorders in people with type 2 diabetes, with hypothyroidism being the most common. Thyroid disorders can have a significant effect on blood glucose levels and, left untreated, can affect diabetes control. An overactive thyroid may increase insulin requirements, while an underactive thyroid can decrease insulin requirements."

On the left side of the page, there is a sidebar with the heading "Diabetes and You" and sub-sections: "Living with Diabetes", "Just Diagnosed", and "Day-to-Day". Below this, there is a section titled "Complications" with sub-sections: "Celiac disease" and "Depression".

At the bottom of the page, there is a call to action: "Share your story & win at [fightingdiabetes.ca](http://fightingdiabetes.ca)". There is also a small logo for "WHO ARE YOU FIGHTING FOR?".

... Because of the link between diabetes and thyroid disease, people with diabetes *should be tested for thyroid disorders every three to five years...*

<http://www.diabetes.ca/diabetes-and-you/living/complications/thyroid-disease/>



# Diabetes New Zealand



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## Am I at risk?

You can't prevent thyroid disease, but by being informed, you can take steps should symptoms appear. Some of the risk factors for thyroid disease are:

- You have a family history of thyroid disease.
- You already have a condition that affects the immune system such as type1 diabetes or rheumatoid arthritis.
- You are a women over the age of 40.
- You are a women who has recently given birth.
- You are a man over the age of 65.

Find out if you are at risk  
and how you can try and

symptoms include:

- Fatigue
- Hair loss



[http://www.diabetes.org.nz/about\\_diabetes/complications\\_of\\_diabetes/thyroid](http://www.diabetes.org.nz/about_diabetes/complications_of_diabetes/thyroid)





# Diabetes UK



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**DiABETES UK**  
CARE. CONNECT. CAMPAIGN.

## Thyroid problems

**DiABETES UK**  
CARE. CONNECT. CAMPAIGN.

The thyroid is a gland in the neck, situated just below the Adam's apple, which produces hormones to regulate the body's metabolism (the chemical reactions that occur in the body's cells to convert food into energy). There are two types of thyroid disorder: hypothyroidism (where the body doesn't produce enough thyroid hormones) and hyperthyroidism (where it produces too much).

Symptoms include the following:

Hypothyroidism

<http://www.diabetesinformation-for-parents.org.uk/Diabetes-care/Thyroid-problems/>

### Action points

- Did your child get a blood test to check their thyroid hormone levels when they were diagnosed with diabetes? If not, ask for one.
- Make sure your child gets a blood test for thyroid hormone levels every year as part of their annual review.

blood test to check that their thyroid

and destroy the insulin-producing cells. For this reason, thyroid problems are more

can be treated successfully with tablets.

### Action points

- Did your child get a blood test to check their thyroid hormone levels when they were diagnosed with diabetes? If not, ask for one.
- Make sure your child gets a blood test for thyroid hormone levels every year as part of their annual review.